1929

Yama(no)uchi Ice Axe

The first domestic ice axe made by Toichiro Yama(no)uchi, a technician at IMR. At the time, it was considered to be one of the top five masterpieces by alpinists worldwide.

The exhibit: Donated by Mr. Tomio Sakai (a former member of the Tohoku University alpine club)
Serial Number: 1865/2000

1920

Notebook of Prof. Kotaro Honda

Handwritten lecture notes by Prof. Kotaro Honda, the first director of IMR.

The exhibit: "Steel Science, Chapter 1, Preface: On Research Methods"

1959

Dendritic Titanium Crystals

Titanium dendrites created by "vapor phase reduction method.*"

The research for this technology was promoted with the aim to mass produce high-purity titanium, which was of a concern at that time. Although it was not used in industry, it was recognized as Essential Historical Materials for Science and Technology (by the National Museum of Nature and Science) as an achievement that should be conveyed to future generations.

*The method to obtain high-purity titanium by reducing titanium tetrachloride with vaporized magnesium.

Institute for Materials Research,
Tohoku University
Established in 1916
Remembering its 100-year history

The Honda Memorial Hall is a research building completed in 1941. In 1994, a renovation reinforced the walls and refurbished the interiors while the entrance hall and the marble stones of the staircase were kept, thus preserving the appearance of the old days. It was recognized as a Registered Tangible Cultural Property (Structure) by Japan's Agency for Cultural Affairs in 2021.
The Honda Memorial Room and the Memorial Exhibition Room on the second floor of this building showcase regular exhibition of items associated with Prof. Kotaro Honda (the founder of IMR), various innovations from IMR that has become commercialized such as KS magnet steel, and several other new materials and their products.

Honda Memorial Room

Prof. Kotaro Honda was the founder of IMR and a metallurgist and physicist. He was selected as one of the Ten Japanese Great Inventors by the Japan Patent Office.
In commemorating his achievements, his desk, chair, laboratory notebook, calligraphy, and other various relics are exhibited.

Visitor Information

Opening Hours
Weekdays 9：00 ～ 16：00

Maximum visitor numbers
Up to about 10 people

Planning your visits and reservations
For a guided tour：Please contact us to make a reservation at least 10 days in advance.
Without a guide：Reservations are not required. Please visit General Affairs Office at the entrance of the Honda Memorial Hall to sign-in.

Tour duration time
About 15 minutes

Contact
Public Relations Office, Institute for Materials Research, Tohoku University
E-mail: pro-adm.imr@grp.tohoku.ac.jp
TEL: 022-215-2144　　FAX: 022-215-2482

1st edition, December 2023

Honda Memorial Hall

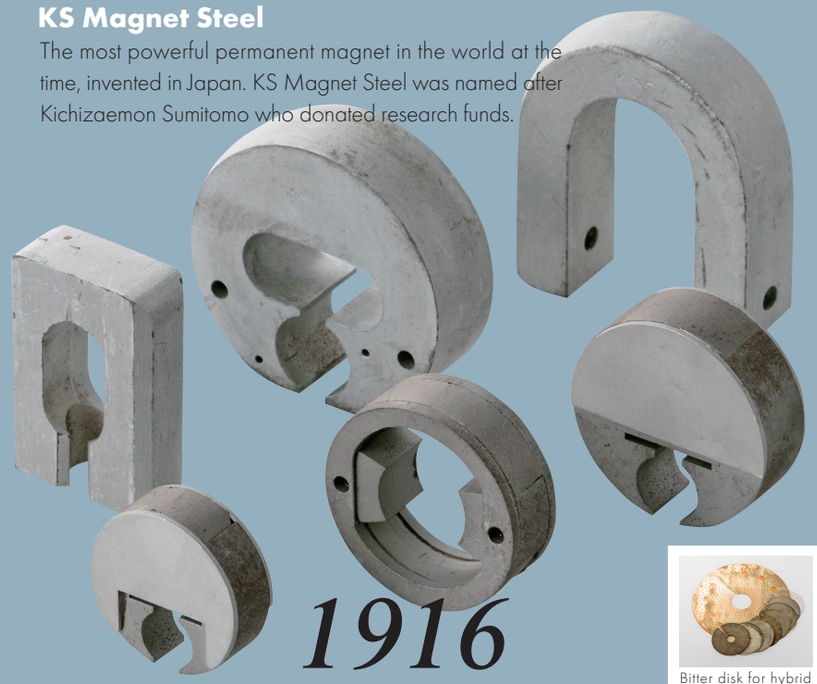
Memorial Exhibition Room

Research

Institute for Materials Research, Tohoku University

IMR's Materials Science: serving society and changing the world

The Memorial Exhibition Room displays over 50 inventions and lab instruments from the institute's history. Explore a century of IMR's historic achievements, from the fundamental to the applied.



1916

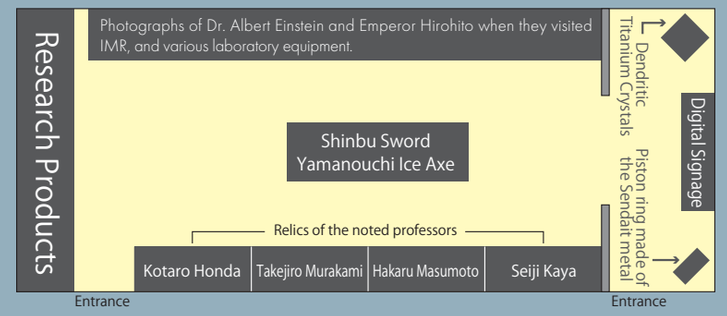
KS Magnet Steel

The most powerful permanent magnet in the world at the time, invented in Japan. KS Magnet Steel was named after Kichizaemon Sumitomo who donated research funds.

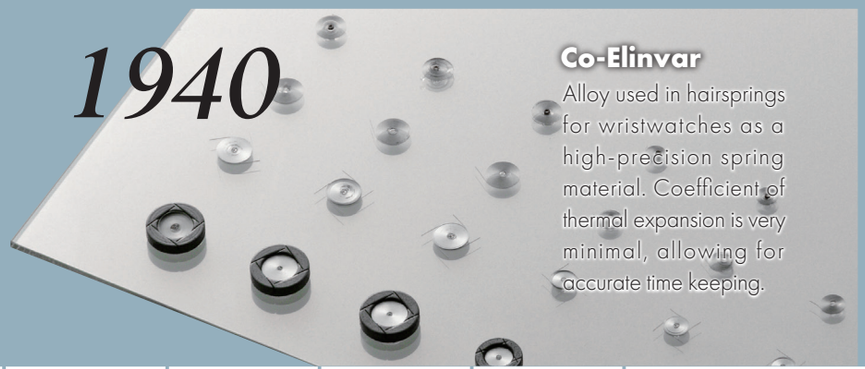
1932

Sendust

Magnetic core material used for devices such as transformers in electronic equipment. It is also used for components in smartphones. The name came from magnetic 'dust' made in 'Sendai'.



1940



Co-Elinvar

Alloy used in hairsprings for wristwatches as a high-precision spring material. Coefficient of thermal expansion is very minimal, allowing for accurate time keeping.

1973

Amorphous Alloy

Soft magnetic material used for tape heads and transformers. Its characteristics are high-strength and rust resistant properties.

Silicon Carbide (SiC) Fiber

Lightweight, high-strength, and high heat-resistant ceramic fiber. It is attracting much attention as it is being introduced in the latest engines to reduce aircraft weight.

1976

Research Products

Bitter disk for hybrid magnet

Pulse magnet (the world's first use of Be-Cu wire)

Cold-rolling process of step cross-sectioned strips

20-high rolling mill by SENDZIMIR JAPAN, LTD

Tough high hardness alloy tool bit

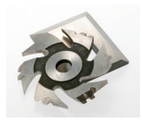
The first Collin's type helium liquefier introduced in Japan (displayed in Building 2) and its instruction manual

Metallurgical microscope; Invention of Murakami Reagent improves metallographic analysis

Corrosion resistance test samples of Cr-Mo steel

The first domestically produced seamless metal bellows

Slitter knife and ultra chipper knife by TOYO KNIFE CO., LTD.



Tenon cutter by TOYO KNIFE CO., LTD.

Product of TOHOKU STEEL CO., LTD.

Successful ductility of intermetallic compound Ni_3Al

Nitinol products (Portable wireless antenna and eyeglass frame)

Sendust magnetic seal

Sendust pressed powder core

Sendust (soft magnetic material) powder and its pressed core

Germanium single crystal

Potassium lithium niobate (KLN) single crystal (by micro pulling down technique)

Rutile single crystal (by EFG technique)

Calcium niobium gallium garnet (Nd:CNGG) single crystal (by Czochralski Technique)

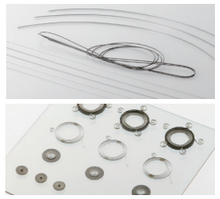
Silicon Carbide/ Carbon-based functionally graded materials

Inorganic fiber fabricated from polycarbosilane

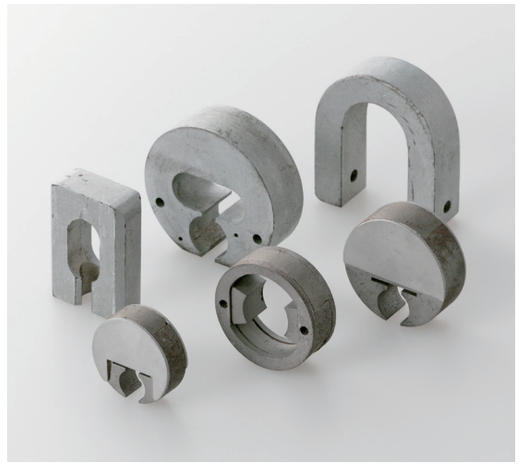
Model showing the relationship between components of Sendust and permeability

Co-Elinvar hairsprings

Self-winding wristwatch with Diaflex and Co-Elinvar



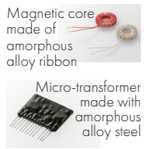
Spiral wire (top) and power spring made of Diaflex (down)



KS magnet steel (back), new KS magnet steel (front)

Fe-Co-Cr-Si-B amorphous alloy wire

Fe-Ni-Si-B amorphous alloy powder



Magnetic core made of amorphous alloy ribbon

Micro-transformer made with amorphous alloy steel

Applied products of amorphous soft magnetic alloy

Amorphous alloy ribbon for magnetic heads

Amorphous magnetic alloys

Silicon Carbide (SiC) fiber

Al-based amorphous powder compacts by warm extrusion

Standard ruler made by Stainless Invar

Springs made of Co-Elinvar and Diaflex

Tensile test piece for Japanese sword "Shinbu-to"

COBARION®: New class of Co–Cr-based alloys

Zr-based metallic glass plate

La-based metallic glass balloon

Micro gear made of metallic glass

Bicycle gear wheel made of nanocrystalline amorphous alloy powder